

Notice of Allowability

Application No.

10/830,140

Examiner

Henry S. Hu

Applicant(s)

OKAZOE ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE of April 9, 2007.
2. ☒ The allowed claim(s) is/are 11-17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 3-8-07
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in two telephone interviews with **Corwin P. Umbach (registration # 40,211, tel: 703 413-3000) on June 4 and 14, 2007** to cancel non-elected Claims 1-10 and 18 as following:

Claim

Claims 1-10 and 18 please cancel Claims 1-10 and 18

DETAILED ACTION

2. This Office Action is in response to **RCE request along with previous Amendment** (after Final) filed on March 8, 2007 and April 9, 2007 respectively. With such an amendment after final, Claim 14 was amended, while no claim was cancelled or added. To be specific, the amendment on dependent Claim 14 is to correct a typographical error.

With above Examiner's amendment, nonelected **Claims 1-9 (Group I), Claim 10 (Group II), and Claim 18 (Group IV)** were all cancelled. The examiner accepts **Figure 1 in one drawing sheet** filed by the Applicants on April 23, 2004 with a brief description of drawing on page **11**. **Claims 11-17 with four independent claims (Claims 11, 12, 15 and 17)** are now pending. An action follows.

3. Claim rejections under 35 USC 103 rejections in previous **Final** Office Action filed on November 8, 2006 are now removed for the reasons given in paragraphs 4-9 thereafter.

Allowable Subject Matter

4. Claims 11-17 are allowed.

5. The following is an examiner's statement of reasons for allowance: The above claims 11-17 are allowed over the closest references:

6. The limitation of parent **Claim 11** in present invention relates to **a process for producing a fluorosulfonyl group-containing polymer**, characterized by polymerizing at least one member of the following compound (7-1), or at least one member of the following compound (7-1) and at least one member of a polymerizable monomer which is copolymerizable with the compound (7-1).

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Parent **Claims 12, 15 and 17** are related to *polymers comprising repeating units of monomer (7-1) in Claim 11; while parent **Claim 17** is related to monomeric compound (7-1A), which is more specified than (7-1). See other limitations of dependent **Claims 13-14 and 16.***

7. Applicants have now claimed in each of four parent **Claims 11, 12, 15 and 17** an unexpected way of producing fluorosulfonyl group-containing homo- or co-polymer. For instance, it is achieved by (A) homo-polymerizing at least one compound (7-1), or by (B) co-polymerizing a mixture of at least one compound (7-1) and at least one polymerizable co-monomer.

After a close examination, both primary references indeed do not disclosed or suggest the structure of the claimed monomer at all. For instance, **Kazuya** does NOT disclosed the attachment of fluorosulfonyl group onto the end position of R¹ group, while **Okazoe** does NOT disclose the attachment of fluorosulfonyl end group onto the Ve-50 by any expectation in synthetic chemistry such as pyrolysis reaction (see page 13 bottom section and page 14 top section of Remarks).

8. Secondary reference **Connolly** only discloses the preparation of a linear type vinyl ether carrying fluorosulfonyl end group; Connolly does not teach or suggest the motivation to add such a fluorosulfonyl endgroup onto Kazuya or Okazoe's cyclic type monomeric compound. Although the structure skeleton of Connolly's linear monomer is at least somewhat similar to the claimed cyclic monomer compound, it may still take a lot of synthetic effort so as to possibly

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achieve the claimed structure. The current critical point is on the issue of linear/cyclic skeleton. As known in the art, **quite different chemistry may be needed to convert linear compound into cyclic analogue**. Therefore, secondary reference Connolly cannot fix the deficiency of Kazuya or Okazoe; the motivation to link is thereby missing for both 103 rejections.

9. In order to be further distinguished from the teaching of secondary reference Connolly, some structure-property relationship, particularly due to the existence of dioxole five-membered ring (cyclic) structure has been provided. For instance, Applicants have pointed on page 14 at top section that “the polymer produced using the cyclic monomer of the present invention exhibits **significantly improved high-temperature and oxygen gas solubility characteristics** relative to the monomer produced using the linear monomer of Connolly”.

10. It is noted by this Examiner that **a linear form is certainly quite different from cyclic form in view of property, reactivity and preparation**. Even the difference is only one carbon atom in the chemical structure or a tiny extra step in its process of making, the final polymeric products can be with very much different properties.

11. The key issue on two things as: (A) directly converting a linear form into a cyclic form and (B) a motivation from Connolly to add a fluorosulfonyl endgroup onto Kazuya or Okazoe's cyclic monomeric compound, cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

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12. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the four independent **Claims 11, 12, 15 and 17** are allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending dependent **Claims 13-14 and 16** are passed to issue.

13. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Patent Examiner, Art Unit 1713, USPTO

June 18, 2007



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